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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,986	03/16/2006	Charles Pollock	P-US-CS 1133	6973
7590	07/03/2007		EXAMINER MCLOUD, RENATA D	
Michael P Leary Black & Decker 701 E Joppa Rd TW 199 Towson, MD 21286			ART UNIT 2837	PAPER NUMBER
			MAIL DATE 07/03/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/526,986	POLLOCK ET AL.	
	Examiner Renata McCloud	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 16 March 2006.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-40 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-4,22,23 and 40 is/are rejected.

7)  Claim(s) 5-21 and 24-39 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. \_\_\_\_\_  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Objections***

1. Claims 5-21,26-36 are objected to because of the following informalities: Claims 5-21,26-39 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits. Appropriate correction is required,

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4,22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollock et al (US 6140729) in view of Byrne et al (US 4670696).

**Claim 1:** Pollock et al teach an electrical machine comprising: a rotor (fig. 5:7) having a plurality of rotor poles (8; col. 5:38-40); a stator (2) for rotatably receiving said rotor and having field magnet means (col. 2:45-47; 7:66-8:2) for generating a first magnetomotive force between said rotor and said stator (col. 5:28-35), the stator incorporating at least two electrical windings (fig. 3:10,11; col. 5:16-19) at least one which is an armature winding (11) adapted to carry electrical current varying in synchronism with rotation of said rotor relative to said stator to generate a varying second magnetomotive force having a component transverse to said first magnetomotive force (col. 2 :43-50); control means (fig. 7: 42,43; col. 6:14-20,37-40) for

controlling supply of electrical current to the or each said armature winding; and position sensing means (col. 6:20-32) for detecting at least one induced first electrical signal dependent on rotational position of said rotor relative to said stator, the or each said first electrical signal being induced in a respective one of said windings by a voltage across at least one other of said windings (col. 3:41-50; 8:3-10), to thereby supply at least one second electrical signal to said control means representative of the rotational position of said rotor relative to said stator (col. 6:20-47). Although it appears implicitly taught, they do not explicitly recite said voltage being a requirement of normal operation of the machine to convert electrical energy into mechanical energy and/or mechanical energy into electrical energy, to thereby supply at least one second electrical signal to said control means representative of the rotational position of said rotor relative to said stator. Byrne et al teach position sensing means (Fig. 12:25/27) for detecting at least one induced first electrical signal dependent on rotational position of said rotor relative to said stator (col. 23:36-42), the voltage being a requirement of normal operation of the machine to convert electrical energy into mechanical energy and/or mechanical energy into electrical energy to thereby supply at least one second electrical signal to said control means representative of the rotational position of said rotor relative to said stator (col. 1:52-60; col. 18:48-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Pollock et al to convert electrical energy into mechanical energy as taught by Byrne et al in order to produce torque.

**Claim 2:** Pollock et al and Byrne et al teach the limitations of claim 1. Referring to claim 2, Pollock et al teach the stator has a plurality of stator poles, and at least one said armature winding is wound with a pitch corresponding to a plurality of stator pole pitches (Col. 2:43-46).

**Claim 3:** Pollock et al and Byrne et al teach the limitations of claims 1 and 2. Referring to claim 3, Pollock et al teach the field magnet means includes at least one field winding (11)

adapted to be connected in series or in parallel with a circuit containing at least one said armature winding (col. 7:11-25, 59-62).

**Claim 4:** Pollock et al and Byrne et al teach the limitations of claims 1-3. Referring to claim 4, Byrne et al teach position sensing means (fig. 12: 25/27) is adapted to detect said at least one induced first electrical signal (col. 23: 26-62) in said at least one field winding (N; col. 18:30-35)

**Claim 22:** Pollock et al teach an electrical machine comprising: a rotor (fig. 5: 7) having a plurality of rotor poles (8; col. 5:38-40); a stator (2) for rotatably receiving said rotor and having field magnet means (col.. 2:45-47; 7:66-8:2) for generating a first magnetomotive force between said rotor and said stator (col. 5:28-35), the stator incorporating at least two electrical windings (fig. 3: 10,11; col. 5:16-19) at least one which is an armature winding (11) adapted to carry electrical current varying in synchronism with rotation of said rotor relative to said stator to generate a varying second magnetomotive force having a component transverse to said first magnetomotive force (col. 2 :43-50); control means (fig. 7:42,43; col. 6:14-20,37-40) for controlling supply of electrical current to the or each said armature winding; and position sensing means (col. 6:20-25) for detecting at least one induced first electrical signal dependent on rotational position of said rotor relative to said stator, the or each said first electrical signal being induced in a respective one of said windings by a voltage across at least one other of said windings (col. 3:41-50, 8:3-10), to thereby supply at least one second electrical signal to said control means representative of the rotational position of said rotor relative to said stator (col. 6:20-32) controlling supply of current to the armature in response to the second signal (col. 5:62-66). Although it appears implicitly taught, they do not explicitly recite the voltage being a requirement of normal operation of the machine to convert electrical energy into mechanical energy and/or mechanical energy into electrical energy. Byrne et al teach position sensing

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means (Fig. 12:25/27) for detecting at least one induced first electrical signal dependent on rotational position of said rotor relative to said stator (col. 23:36-42), the voltage being a requirement of normal operation of the machine to convert electrical energy into mechanical energy and/or mechanical energy into electrical energy to thereby supply at least one second electrical signal to said control means representative of the rotational position of said rotor relative to said stator (col. 1:52-60; col. 18:48-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Pollock et al to convert electrical energy into mechanical energy as taught by Byrne et al in order to produce torque.

**Claim 23:** Pollock et al and Byrne et al teach the limitations of claim 22. Referring to claim 23, Byrne et al teach position sensing means (fig. 12: 25/27) is adapted to detect said at least one induced first electrical signal (col. 23: 26-62) in said at least one field winding (N; col. 18:30-35).

4. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christian et al (US 4031440) in view of Byrne et al (US 4670696).

**Claim 40:** Christian et al teach a method of determining the rate of change of current in at least one winding of an electrical machine, the method comprising monitoring a voltage induced in at least one respective coil magnetically coupled to a magnetic field generated by a conductor carrying said current (Abstract; col. 3:21-28). Although it appears implicitly taught, they do not explicitly recite, determining the rate of change of current in at least one winding of an electrical machine for converting electrical energy into mechanical energy and/or mechanical energy into electrical energy. Byrne et al teach an electrical machine for converting electrical energy into mechanical energy and/or mechanical energy into electrical energy (1:52-60). It

would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Christian et al to convert electrical energy into mechanical energy as taught by Byrne et al in order to produce torque.

***Allowable Subject Matter***

5. Claims 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

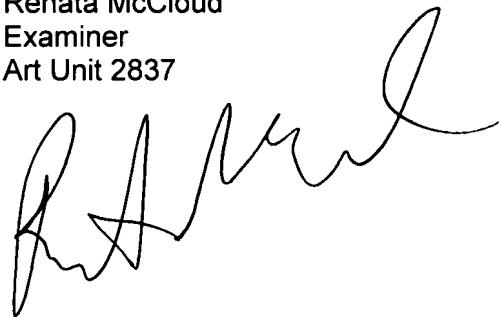
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Renata McCloud  
Examiner  
Art Unit 2837

rdm

A handwritten signature in black ink, appearing to read "Renata McCloud", is positioned to the right of the typed name and title.